

LOF et al. -- 10/648,785
Attorney Docket: 081468-0305473

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) An alignment tool, comprising:
a substrate table configured to hold a substrate having a substrate mark, wherein the substrate mark may be at a different level from the rest of the surface of the substrate; and
an alignment system configured to detect alignment between a reference mark and the substrate mark using an alignment beam of radiation, wherein an optical element is removably positionable in the path of the alignment beam to adjust the focal plane of the alignment system to focus on the substrate mark at a different level from the rest of the surface of the substrate.
2. (Original) An alignment tool according to claim 1, wherein the optical element is a plane plate.
3. (Original) An alignment tool according to either claim 1, wherein the optical element adjusts the focal plane of the alignment system by up to 2 mm.
4. (Original) An alignment tool according to claim 1, wherein the optical element adjusts the focal plane of the alignment system by at least 0.1 mm.
5. (Original) An alignment tool according to claim 1, wherein the alignment system comprises a projection system and the optical element is placed in the path of the alignment beam directly after the alignment system.
6. (Original) An alignment tool according to claim 1, wherein the optical element is attached to the substrate table.
7. (Original) An alignment tool according claim 1, further comprising front-to-backside alignment optics configured to direct the alignment beam to the back of the substrate and in which the optical element is placed on the entrance to the front-to-backside alignment optics.

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8. (Currently amended) An alignment tool according to claim 5, wherein the position of the optical element along the ~~projection~~ alignment beam is altered to adjust the focal plane of the alignment beam.
9. (Original) An alignment tool according to claim 1, wherein the optical element comprises a plurality of interchangeable optical elements.
10. (Original) An alignment tool according claim 9, wherein the plurality of interchangeable optical elements have different thicknesses.
11. (Original) An alignment tool according to claim 9, wherein the plurality of interchangeable optical elements have different optical properties.
12. (Original) An alignment tool according to claim 11, wherein the different optical properties are different refractive indices.
13. (Original) An alignment tool according to claim 12, wherein the optical elements are hollow, each optical element being filled with a fluid having a different refractive index.
14. (Original) An alignment tool according to claim 1, wherein the optical element is hollow and filled with a fluid, the composition of the fluid being adjustable to change the refractive index of the optical element.
15. (Original) An alignment tool according to claim 14, wherein the refractive index of the optical element is changed by changing a salt concentration of the fluid.
16. (Original) An alignment tool according to claim 14, wherein the refractive index of the optical element is changed by changing the ratio of mixture of two fluids in the optical element, each fluid having a different refractive index.
17. (Original) An alignment tool according to claim 1, wherein the optical element comprises a plurality of optical elements removably positionable in the path of the alignment beam such that one or more may be simultaneously in the path of the alignment beam.

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18. (Original) An alignment tool according to claim 1, wherein the optical element adjusts the focal plane of the alignment system in a direction parallel to the direction of propagation of the alignment beam.

19. (Original) An alignment tool according to claim 1, wherein the optical element adjusts the focal plane of the alignment system in a direction perpendicular to the direction of propagation of the alignment beam.

20. (Currently amended) A lithographic projection apparatus, comprising:
a radiation system configured to provide a ~~projection~~ beam of radiation;
a support configured to support a patterning device, the patterning device configured to pattern the ~~projection beam of radiation~~ according to a desired pattern;
a projection system configured to project the patterned beam onto a target portion of a substrate; and
an alignment tool including
a substrate table configured to hold the substrate having a substrate mark, wherein the substrate mark may be at a different level from the rest of the surface of the substrate; and
an alignment system configured to detect alignment between a reference mark and the substrate mark using an alignment beam of radiation, wherein an optical element is removably positionable in the path of the alignment beam to adjust the focal plane of the alignment system to focus on the substrate mark at a different level from the rest of the surface of the substrate.

21. (Original) An apparatus according to claim 20, wherein the alignment beam traverses at least part of the projection system.

22. (Currently amended) An alignment method, comprising:
~~providing a substrate with a substrate mark which may be at a different level from the rest of the surface of the substrate;~~
~~providing an alignment beam of radiation;~~

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~~providing an alignment system for projecting [[the]] an alignment beam of radiation onto [[the]] a substrate mark provided on a substrate, wherein the substrate mark may be at a different level from the rest of the surface of the substrate; and~~

adjusting the focal plane of the alignment beam to focus on the substrate mark at a different level from the rest of the surface of the substrate by interposing an optical element into the alignment beam while detecting alignment.

23. (Currently amended) A device manufacturing method, comprising:

~~at least partially covering a substrate with a layer of radiation sensitive material;~~

~~providing a patterned projection beam of radiation using a radiation system;~~

projecting [[the]] a patterned beam of radiation onto a target portion of [[the]] a layer of radiation-sensitive material at least partially covering a substrate; and

an alignment method including

~~providing the substrate with a substrate mark which may be at a different level from the rest of the surface of the substrate;~~

~~providing an alignment beam of radiation;~~

~~providing an alignment system for projecting [[the]] an alignment beam of radiation onto [[the]] a substrate mark which may be at a different level from the rest of the surface of the substrate; and~~

adjusting the focal plane of the alignment beam to focus on the substrate mark at a different level from the rest of the surface of the substrate by interposing an optical element into the alignment beam while detecting alignment.

24. (Original) A device manufactured according to the method of claim 23.